

Contact-tracing in patients with genital chlamydial infection

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SUMMARY Of 2021 men attending a venereal disease clinic during a 20-month period, 527 (26.1%) harboured *Chlamydia trachomatis*, 310 (15.3%) *Neisseria gonorrhoeae*, and 94 (4.7%) both organisms. *C trachomatis* and *N gonorrhoeae* were isolated in 163 (15.7%) and 141 (13.8%) respectively of 1039 women attending the same clinic over a one-year period; 44 (4.2%) women harboured both organisms.

Contact-tracing was carried out for 112 male and 88 female patients infected with chlamydia, none of whom had gonorrhoea. Of the 144 female contacts, 103 (71.5%) attended for examination and 67 (65%) were found to harbour chlamydia. Of the 103 male contacts, 95 (92.2%) attended for examination and 50 (52.6%) were found to harbour chlamydia. Of the 67 female contacts, about 55% were symptomless as were 50% of the male contacts. Cultures for *N gonorrhoeae* from the sexual contacts of patients with genital chlamydial infections showed positive results in 37 (18.5%) of the 200 contacts examined.

For comparison the results of contact-tracing in 201 male and 231 female patients with gonorrhoea were analysed. Of the male and female contacts, 64.5% and 66.1% respectively attended the clinic for examination. *N gonorrhoeae* was isolated from 77.7% of the female and from 85.6% of the male contacts; about 40% and 50% respectively were symptomless.

The high percentage of symptomless carriers of *C trachomatis* among sexual contacts emphasises the need for tracing contacts of this infection.

Introduction

Chlamydia trachomatis is at least as common a cause of sexually transmitted infections as *Neisseria gonorrhoeae*.¹ Complications, such as salpingitis² and acute epididymitis,³ seem to occur even more frequently in patients infected with chlamydia than in those with gonorrhoea.

As in all sexually transmitted diseases, it is important to treat not only patients infected with *C trachomatis* (including those who appear to be symptomfree) but also their sexual partners by tracing all sexual contacts to prevent further transmission of the organism. Such an epidemiological approach would be one way of reducing the incidence of infertility, which is a sequelae of salpingitis⁴ and epididymitis. The importance of such measures should be considered in the light of recent reports that antibiotic treatment does not seem to reduce the incidence of infertility following salpingitis.⁵

In Sweden contact-tracing of patients with gonorrhoea is required by law. Contacts named by the patient are informed that they may be carriers of *N gonorrhoeae*. They are requested to see a physician within a week of receiving the information. No such law exists regarding infections caused by *C trachomatis*, apart from lymphogranuloma venereum.⁶

In the present study, all patients attending a venereal disease clinic over a period of 12-20 months had cultures performed for *N gonorrhoeae* and *C trachomatis*. Apart from all patients with gonorrhoea, some of the patients in whom a chlamydial infection was diagnosed were asked if they would like to see a social worker to obtain further information about their infections; at this interview they were also told that their partners should be examined. The results of tracing the contacts of these latter patients are reported in this paper.

Patients and methods

STUDY POPULATION

The entire study population consisted of 2021 men and 1039 women, who attended the Department of

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Dermatology and Venereology at the University Hospital, Lund, from September 1977 to April 1979 and from April 1978 to April 1979 respectively.

Most of the patients attending the department were between 15 and 25 years old, the median age of the women being slightly lower than that of the men. Almost all the patients were living either in the university town of Lund, which has about 50 000 inhabitants, or in the rural area surrounding the town. Many were students.

Contact-tracing of the partners of 112 of the men and of 88 of the women in whom genital chlamydial infections, but not gonorrhoea, had been diagnosed was undertaken.

CULTURAL STUDIES

C trachomatis

Urethral specimens for isolation of chlamydia were collected from the male patients and transported as described elsewhere.² In women, cervical specimens were collected with a cotton-tipped swab but were otherwise treated in the same way as the urethral specimens. Cultures for *C trachomatis* were made on cycloheximide-treated McCoy cells as previously reported.⁸

N gonorrhoeae

In addition to microscopical examination of urethral and cervical secretions, specimens were collected for culture for *N gonorrhoeae* from the urethra and rectum in men and from the cervix in women; these were inoculated directly on to a haematin agar medium,⁹ which was immediately incubated at 37°C in an incubator with regulated CO₂ atmosphere and humidity. The methods used for the identification of *N gonorrhoeae* were those described elsewhere.⁹

CONTACT-TRACING

Gonorrhoea

All patients in whom gonorrhoea was diagnosed were seen by the social worker at the clinic to initiate tracing of contacts. In the present study, we analysed the results of contact-tracing in 231 of the women and 201 of the men in whom gonorrhoea had been diagnosed during the year preceding the present study. The prevalence of chlamydial infection in this group is not known. Either the patients were asked to contact their sexual partners themselves and to ask them to attend for examination or the social worker wrote a letter to the partners with instructions on what they had to do. According to Swedish law,⁶ sexual contacts of patients with gonorrhoea who do not attend for examination can be compelled to do so; the initiative for this is then taken by the county medical officer after a report from the physician.

Chlamydial infection

Patients with genital chlamydial infections, apart from the very few patients with lymphogranuloma venereum, are not affected by a similar law. In their case, contact-tracing can only be undertaken on the basis of voluntary participation by the patient and their contacts. In this study, contact-tracing was carried out in 112 of the male and 88 of the female patients in whom a chlamydial infection, but not gonorrhoea, had been detected. In principle, contact-tracing was undertaken under the same conditions as for patients with gonorrhoea, although only after the patients and their contacts had given consent. Thus the patients with chlamydial infections were given the opportunity to talk to the social worker at the department, who asked the patients to contact their partners and suggest they attend for examination. The contacts were never asked directly by the social worker to attend the clinic. The patients were recommended to contact all those with whom they had had sexual contact during the three months or more before attending the clinic.

The patients in the two series were selected at random.

Results

TOTAL STUDY POPULATION

During the study period, 527 (26.1%) of the 2021 men were found to be infected with *C trachomatis*. *N gonorrhoeae* was isolated from 310 (15.3%) and both organisms were isolated from 94 (4.7%) male patients.

Of the 1039 women attending the clinic, 163 (15.7%) harboured *C trachomatis*, 141 (13.8%) *N gonorrhoeae*, and 44 (4.2%) both chlamydia and gonococci.

SYMPTOMS

Of the 527 men in whom a genital chlamydial infection was diagnosed, 134 (25.3%) considered themselves to be symptomfree. Similarly, 39 (12.6%) of 310 men with gonorrhoea and 16 (17%) men infected with both organisms had no symptoms.

Of the 163 women with chlamydial infections, 47 (28.8%) denied any symptoms as did 39 (27.7%) of the 141 women with gonorrhoea and 16 (36.4%) of the 44 women infected with both organisms.

CONTACT-TRACING

Chlamydial infection

The 112 men in whom contact-tracing for genital chlamydial infections was undertaken reported 144 female contacts. Of these women, 103 (71.5%) attended for examination and 67 (65%) were found to be infected with chlamydia; 55% of the 67 women denied any symptoms.

The 88 women with chlamydial infections in whom contact-tracing was performed reported 103 male contacts. Of these men, 95 (92.2%) attended for examination and 50 (52.6%) were found to harbour chlamydia; 50% denied any symptoms.

Gonorrhoea

Gonorrhoea was simultaneously diagnosed in 19 (18.4%) of 103 female and in 18 (18.9%) of 95 male contacts of patients with genital chlamydial infections.

The 201 men with gonorrhoea, in whom the results of contact-tracing were analysed, reported 242 female contacts. Of these women, 160 (66.1%) attended for examination and 137 (85.6%) were found to have gonorrhoea. The 231 women with gonorrhoea, in whom a similar analysis was made, reported 265 male contacts; of these, 171 (77.7%) were infected with gonorrhoea.

Of the 137 female contacts with gonorrhoea, approximately 40% were symptomfree, as were approximately 50% of the 171 male contacts infected with *N gonorrhoeae*.

Discussion

During recent years the importance of diagnosing and treating genital infections with *C trachomatis* has become obvious, as it is now known that chlamydia may cause not only primary genital infections but also serious complications. In our hospital catchment region, salpingitis is more often associated with chlamydial infection than with gonorrhoea.¹⁰ In young men, chlamydia seem to be the most common cause of acute "idiopathic" epididymitis.¹¹ *C trachomatis* may also be transmitted to the neonates resulting in conjunctivitis and pneumonia.¹

Contact-tracing has already been undertaken in selected groups of patients with genital chlamydial infections, such as in men with nongonococcal urethritis (NGU). In these studies, 30-70% of female contacts have been found to be chlamydia-positive.¹²⁻¹⁵

As indicated by the results of our contact-tracing, gonorrhoea seems to be more contagious than chlamydial infection. Thus gonococci were isolated from 81% and chlamydia from 59% of the contacts in the two series of patients studied. However, the less acute the symptoms were in patients with chlamydial infections the longer their infections lasted; furthermore, the presence of antibodies in secretions might make chlamydial infections more difficult to detect by culture than gonorrhoea.

In recent studies,¹⁶ Paavonen found that in 25 of 99 chlamydia-positive female contacts of men with NGU, urethral but not cervical specimens gave

positive results for *C trachomatis*. In comparative studies of such specimens from patients attending venereal disease clinics, we did not observe any difference in the isolation rate, using the same culture technique as in the present study (unpublished data).

The incubation period for genital infections with *C trachomatis* is generally longer than that for gonorrhoea and has been estimated to be 2-3 weeks.¹ This makes contact-tracing more difficult in patients infected with chlamydia than with gonorrhoea as they have to remember with whom they had sexual contact over a longer period. In our study the social worker noted the sexual history of the patients over a period of at least three months before their visit to the department. We found that many "three-month-old" contacts were carriers of *C trachomatis*.

Asymptomatic infections are more common in patients infected with *C trachomatis* than with *N gonorrhoeae*. Thus approximately half of the male and female chlamydia-positive contacts were symptomless. This makes contact-tracing important, as these patients are unlikely to seek medical advice.

When undertaking contact-tracing for patients with chlamydial infections, as for patients with gonorrhoea, the social worker should be informed of the range of clinical manifestations that might be caused by *C trachomatis*.

Despite the absence of a "lex veneris" for genital chlamydial infections (apart from lymphogranuloma venereum) similar to that for gonorrhoea, the patients generally realised the need for their sexual contacts to be examined. The percentage of contacts of patients with genital chlamydial infections who came for examination was higher than that for contacts of patients with gonorrhoea; the figure for the latter group, which attended the department, was low in comparison. This can be explained by the fact that they consulted other physicians.

The high percentage of symptomless carriers of chlamydia suggests that the organism may become widely spread in the community. The age group of persons in whom most genital chlamydial infections occur is however the same as that of those with gonococcal infections.

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